

Demystifying EMC 2023

CONFERENCE AGENDA EUROPE, GMT +1/ CET

GMT+1/ CET	TUESDAY - FEBRUARY 07	WEDNESDAY - FEBRUARY 08
10:00 - 10:15	OPENING and WELCOME Christian Leicher, President & CEO, Rohde & Schwarz	OPENING and WELCOME Juergen Meyer, VP, Automotive Market Segment, Rohde & Schwarz
10:15 – 10:45	Evolution of EMC measurement methods and solutions Christina Gessner, Rohde & Schwarz	Automotive EMC – New strategies to ensure robustness Andreas Gierstorfer, BMW
10:45 – 11:15	EMC standards update: CISPR, RED, ANSI Jens Medler, Feng Xie, Naseef Mahmud, Rohde & Schwarz	Your best spent 30 mins in OTA Benoit Derat and Arthi Krishnamurthy, Rohde & Schwarz
11:15 – 11:45	BREAK	BREAK
11:45 – 12:00	EMC Standards update: MIL-STD Darren McCarthy, Rohde & Schwarz	EMC Standards update: ISO, UN-ECE Reiner Goetz, Rohde & Schwarz
12:00 – 12:30	EMI Testing on space systems Jens Medler; Rohde & Schwarz and Maria Lorenzo, INTA	Reverberation chambers: moving automotive forward Dimitrios Barakos, Comtest Engineering
12:30 – 13:30	BREAK / NETWORKING AREA	BREAK / NETWORKING AREA
13:30 – 15:00	WORKSHOP (LIVE): EMI DESIGN AND MEASUREMENT TIPS LEE HILL, SILENT SOLUTIONS	Focus Session: EMC testing under dynamic driving conditions Robert Gratzl, Rohde & Schwarz Asmir Hrnac, AVL List GmbH Markus Volmer, Sono Motors
15:00 – 15:30	BREAK	BONUS SESSION 15:00: EMI debugging with oscilloscopes Dr .Arturo Mediano, University of Zaragoza BREAK
15:30 – 16:00	EMC risk management and design compliance for medical devices Matt Nuernberg, Boston Scientific	Understanding precompliance – what, why, how Paul Denisowski, Rohde & Schwarz
16:00 – 16:30	Understanding Test Facilities Steve Hayes, Element	Keynote: What you still don't know about EMC testing Philipp Weigell, Rohde & Schwarz
16:30 – 17:00	LIVE Panel: "EMC Testing: going behind the scenes" Rohde & Schwarz Elements Eurofins	END Day 2 and close of EU session
	END of Day 1 EU session	

Detailed Agenda

DEMC 2023 – CONFERENCE AGENDA DAY 1

CET	TUESDAY – FEBURARY 07
10:00 – 10:15	Opening and welcome Christian Leicher, President & CEO, Rohde & Schwarz
10:15 – 10:45	Keynote: Evolution of EMC measurement methods and solutions Join us for an interview with Christina Gessner – following up from last year’s keynote on mega trends in EMC testing, we will now take a closer look at how measurement methods and solutions have evolved to keep up. Christina Gessner, Rohde & Schwarz
10:45 – 11:15	EMC Standards update: CISPR, RED, ANSI This session will highlight latest developments in relevant EMC standards from our standards experts. ANSI C63.27 is a testing standard which provides guidance for performing wireless coexistence testing. The newest version of the standard was published in May 2022. Naseef will give a short update on the latest 2021 version and explain how to use the standard for testing devices that operate using Bluetooth, WLAN and LTE. Feng will share the latest news from CE Radio Equipment Directive covering ETSI EN standards for WiFi & Co, cellular technologies and EU guideline for E112 emergency service. Jens will share the latest CISPR-16 news. Jens Medler CISPR, Feng Xie RED, Naseef Mahmud ANSI, Rohde & Schwarz
11:15 – 11:45	BREAK
11:45 – 12:00	EMC Standards update: MIL-STD The release of MIL-STD-461G demonstrated the ongoing modernization and technology efforts impacting the defense industry. In addition to the continued commercial technology insertions in the defense industry, the DoD is modernizing the EMC standards to include commercial EMC best practices and matured test technologies. This short presentation will look at some of the changes in test processes, test requirements, and new standards that are impacted with the adoption of MIL-STD-461G. Darren McCarthy, Rohde & Schwarz
12:00 – 12:30	EMI Testing on space systems - Use of FFT based measuring receivers for more speed, more insight and better reliability The use FFT-based measuring receivers is motivated by reducing the scan time by several orders of magnitude and to get more insight due to the possibility of applying longer measurement times. Comparison measurements on a nanosatellite were performed using conventional EMI receiver and FFT-based time-domain scanning technique. Jens Medler, Rohde & Schwarz and Maria María Jiménez Lorenzo, INTA (Spain)
12:30 -13:30	BREAK / NETWORKING AREA
13:30 – 15:00	Workshop (LIVE): EMI design and measurement tips - Where is the switch to switch off the noise after switching on your switch-mode power supply? Most modern electronic designs, whether they are for fixed or e-mobility applications, require the use of one or more switch-mode AC-DC or DC-DC power supplies. Even low-power designs often experience costly delays in development schedules because of radiated and/or conducted emissions test failures. In this interactive session, Lee will measure and demonstrate noise emitted by a switch-mode power supply design using both an oscilloscope and an EMI test receiver. This session will focus primarily on EMC design and troubleshooting. During this entertaining live presentation, Lee will ask questions that attendees can answer during the event. Come ready to text in your answers! Lee Hill, Silent Solutions
15:00 – 15:30	BREAK

15:30 – 16:00	EMC Risk management and design compliance for medical devices This presentation provides a “deep dive” into IEC 60601-1-2:2014+AMD1:2020 and how it applies to today’s world of Medical Device design compliance, risk management, and electromagnetic (EMC) testing. Understanding what “Essential Performance” is and how it applies to the entire product life cycle is crucial for the success of the project. Test “early and often” is our mantra! Matt Nuernberg, Boston Scientific
16:00 – 16:30	Understanding test facility accuracy and maintenance Running a test lab or a pre-compliance test facility requires attention and investment, of effort, knowledge, and financial commitment. With the increased complexity of products, due to the IoT approach of connectivity, manufacturers are realizing the importance of pre-compliance test and evaluation. With the evolution of test equipment and test automation software, it is possible to perform a wide range of EMC measurements quickly and simply. This presentation will look at some important points to understand when operating a test lab or measurement facility, to maintain good quality and to achieve reliable test results. The presentation will cover test equipment, test site facilities, test automation software and test engineer competence. Steve Hayes, Element
16:30 – 17:00	LIVE Panel discussion: “EMC Testing: going behind the scenes” Let’s take a look behind the scene. How do test facilities respond to mega trends in EMC testing? What do they expect from their T&M suppliers? What are key global market drivers and challenges? Our panel of experts will share their insights and take your questions live! Patrick Mayer, Technical Trainer EMC & OTA, Rohde & Schwarz Christian Fischer, Senior Director, Service Products, Rohde & Schwarz Michael Derby and Steve Hayes, Elements Philippe Sissoko, Managing Director; Eurofins
17:00	END OF DAY 1 EU SESSION

DEMC 2023 – CONFERENCE AGENDA DAY 2

CET	WEDNESDAY – FEBRUARY 08
10:00 – 10:15	Opening and Welcome Juergen Meyer, VP Automotive Market Segment, Rohde & Schwarz
10:15 – 10:45	Keynote: Automotive EMC – New strategies to ensure robustness In current vehicle generations, complex driver assistance systems with autonomous driving functions are being integrated. Customers also expect the constant availability of online services. What can EMC do in order to ensure safe operation and immunity to disturbances? Vehicle manufacturers and suppliers are therefore working on the further development of their EMC test strategies. Not only interfaces to functional safety must be considered, but also the previous immunity requirements must be challenged: how can a sufficient test depth be achieved? Are the test methods and signals still up to date? Andreas Gierstorfer, BMW
10:45 – 11:15	Myth busting antenna testing – your best spent 30 mins in OTA With the trend of wireless connectivity expanding across new applications, protocols and frequency bands, in all kinds of products, an increasingly large amount of product development scenarios requires antenna and OTA testing. A typical challenge in daily antenna and OTA measurement work, is to understand if the test facilities are capable to perform the needed measurements, and at what accuracy. Is my chamber big enough to perform a far-field measurement of a particular device? How close of a distance can I use, and still avoid unpredictable near-field effects? What are the uncertainty contributors that I have to take care of, particularly at shorter range lengths? Is there a way to compensate some of these errors? What can I do when my chamber is way too small but I still need far-field assessment? In a lively discussion, Aleksis and Benoit will take you through practical and applicable answers to technical questions such as these, that you may already have experienced or will face in your work. After the session, you might realize that some traditional assumptions in

	<p>the antenna test industry are not necessarily valid - enabling you to more efficiently deal with OTA and antenna testing, saving time and money while gaining confidence in the accuracy of the test results.</p> <p>Benoit Derat and Arthi Krishnamurthy, Rohde & Schwarz</p>
11:15 – 11:45	BREAK
11:45 - 12:00	<p>EMC Standards update: ISO, UN-ECE</p> <p>Automotive EMC test standards and homologation criteria for vehicles and for sub-assemblies are adapting to the challenges of new technologies in the automotive industry. This is a brief information which topics are being discussed.</p> <p>Reiner Goetz, Rohde & Schwarz</p>
12:00 – 12:30	<p>Reverberation chambers: Moving automotive forward</p> <p>The automotive industry is moving towards the Reverberation Chamber (RC) method, since it is now becoming a compulsory test for automotive components. This presentation will begin by outlining the differences between conventional EMC measurements and RC testing. You will learn about the operation of RC's, their strengths and limitations. Field Uniformity concept and the ways to achieve it will be discussed. This presentation will also offer a perspective on RC testing according to international standards, with a strong focus on a specific use-case for automotive components.</p> <p>Dimitrios Barakos, Comtest Engineering</p>
12:30 – 13:30	BREAK / NETWORKING AREA
13:30 – 15:00	<p>Focus Session: EMC Testing under dynamic driving conditions (dynamic test)</p> <p>The electromagnetic emissions of vehicles, particularly EVs, change significantly depending of their operational state. Additionally, the high voltages and fast semiconductor switching speeds of electric drivetrains greatly increase their electromagnetic emissions and susceptibility compared with internal combustion vehicles. Therefore, to get a true understanding of the EMC performance of an electric vehicle, it is essential to test it under dynamic driving conditions. This focus session provides the perspective of a test equipment vendor, testing services provider and vehicle manufacturer to present a holistic view of these challenges and offers a practical solution to this new development in automotive EMC testing.</p> <p>Robert Gratzl, Rohde & Schwarz Asmir Hrnica, AVL List GmbH Markus Volmer, Sono Motors</p>
15:00 -15:30	<p>BONUS SESSION: EMI debugging with oscilloscopes</p> <p>Dr. Arturo Mediano, University of Zaragoza</p> <p>BREAK</p>
15:30 – 16:00	<p>Understanding precompliance – what, why, how</p> <p>It is well-known that detecting and resolving EMC-related issues early in the design process can greatly reduce the time and cost associated with resolving these issues. Precompliance testing therefore plays a critical role in the design cycle of almost all electrical and electronic products. This session provides a practical, technical introduction to the fundamental principles of precompliance testing, with particular emphasis on how precompliance testing is performed as well as the tools and instruments most commonly used for precompliance testing.</p> <p>Paul Denisowski, Rohde & Schwarz</p>
16:00- 16:30	<p>Keynote: What you still don't know about EMC testing</p> <p>Think you're all caught up on the latest and greatest of EMC testing? Think again! The ever-changing world of connectivity and interference awaits. Philipp Weigell, Rohde & Schwarz</p>
16:30	END OF DAY 2 EU SESSION